**Aim:** To review the population characteristics and functional outcomes of patients admitted to a UK Level I trauma centre with distal femoral fractures.
**Method:** Consecutive adult patients with distal femoral fractures over a 2-year period were retrospectively identified from a local trauma database. Fractures were classified according to the AO system. Barthel Index, Parker Mobility Score and ASA grade were calculated. Mobility at 6-months and mortality at 30-days, 6-months and 1-year were reviewed.
**Results:** Forty-four adult patients were identified (mean age 71± 17 years). Most fractures (68%) were simple (AO33-A1), low-energy injuries. Twelve patients had peri-prosthetic fractures. Pre-morbid status was of moderate dependency (mean Barthel Index 74), reduced mobility (Parker Score 5), and associated co-morbidity (ASA 3). Twelve cases were managed conservatively and 32 surgically. The mean length of stay was 27 days. Six-month mobility was reduced compared to admission, and overall mortality at 1-year was 18%.
**Conclusion:** Most distal femoral fractures are fragility fractures causing a prolonged hospital stay, an appreciable degree of morbidity, and an increase in 1-year mortality rates, similar to proximal femur fractures. We propose the use of an integrated fast-track care pathway for management of these fractures, similar to current fractured neck of femur guidelines.

### 0557: AN INNOVATIVE EXTERNAL FIXATOR FOR THE MANAGEMENT OF TROCHANTERIC FRACTURES OF THE FEMUR. SURGICAL TECHNIQUE AND OUTCOMES OF 200 PATIENTS WITH 24 MONTH FOLLOW UP

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**Introduction:** Recent studies compared the use of external fixation in trochanteric fractures with conventional methods of fixation such as sliding hip screw. Only elderly patients, who are considered high risk and not suitable for conventional fixation methods, were included in those studies. This is the first prospective study to report the outcomes of external fixation in a larger patient population which includes young and healthy adults.
**Methods:** 200 patients with intertrochanteric fractures were treated with a newly developed external fixator (AlexFix®). All patients received local anaesthesia in the form of femoral nerve and lateral cutaneous nerve blocks. Patients were followed up for a period of 24 ± 2.1 months.
**Results:** The average operative time (and standard deviation) was 26.22 ± 5.9 minutes. The average use of radiation intra-operatively was 16.67 ± 3.5 seconds. Hospital stay was short with an average of 4.3 ± 1 days. Blood loss was negligible and none received any blood transfusion.
**Conclusion:** Our results strongly prove that this method provides a reliable and safe treatment option that offers minimal operative and anaesthetic risks, no blood loss, early mobilisation and a short hospital stay, with low morbidity and mortality.

### 0560: PATHOGENESIS OF AVULSION FRACTURE OF THE BASE OF 5TH METATARSAL BONE: A CADAVERIC STUDY

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**Introduction:** Proximal fractures of 5th metatarsal are common. Three different fracture patterns are described; diaphyseal, tuberosity avulsion and Jones fractures. The anatomy of the structures attached to the proximal portion of 5th metatarsal bone were analysed to investigate the potential pathogenesis of avulsion fracture in this region.
**Methods:** 32 human cadaveric feet were dissected. A longitudinal lateral incision parallel to the plantar aspect of the foot was made and the major ligamentous and tendinous attachments were carefully preserved. Photographic records were taken at all phases of the dissection.
**Results:** Peroneus brevis tendon had a strong broad-based structure attached to the dorsolateral surface of the tuberosity of 5th metatarsal bone. Fibres of the lateral cord of plantar aponeurosis were seen blending with the fibres of Peroneus brevis tendon and attaching to the tuberosity as a broad and strong structure.
**Conclusion:** The pathogenesis of avulsion fractures seems to be related to the violent pull of the strong and extensive structure formed by the converging fibres of lateral cord of plantar aponeurosis and the Peroneus brevis tendon. The current consensus that this fracture is caused by the avulsion force of Peroneus brevis tendon alone seems unlikely to be true.

### 0578: THE ENHANCED RECOVERY PROGRAM FOR HIP AND KNEE REPLACEMENTS – OUR EXPERIENCE

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**Aim:** The enhanced recovery program for hip and knee replacements (ERP) improves patient care and hospital efficiency. To ensure compliance with the ERP at our local trust, a checklist was introduced containing eighteen objectives, based on recommendations from the ERP guidelines. The subsequent effect on our local trust's ERP was evaluated.
**Method:** The checklists and notes of 42 ERP patients between March-April 2012 were reviewed retrospectively and compared to 53 ERP patients admitted in 2010. Our primary outcome measure was length of stay. Secondary measures were checklist completion rates and criteria used for the national database.
**Results:** The mean length of stay for hip replacement patients has reduced from 7.5 days in 2010 (median 6) to 4.5 days in 2012 (median 4). The mean length of stay for knee replacement has reduced from 6.7 days (median 7) to 4.7 days (median 5). There were improvements in other ERP objectives, including post-op mobilisation. On average, only 40% of each checklist was completed.
**Conclusion:** Introducing the checklist to our trust has successfully acted to encourage the multidisciplinary team members to adhere to ERP guidelines, reducing length of stay. We continue to seek new measures to further improve other ERP objectives.

### 0595: ASSESSING THE SUPPORT AND ACCESSIBILITY FOR PRIMARY HEALTH CARE SERVICES BY THE TRAUMA AND ORTHOPAEDIC DEPARTMENT

Rachael Andrews, Adam Smith, Harry Sprot. *Royal Gwent Hospital, Newport, UK.*

**Aim:** To assess the efficiency of our current system, and in a concurrent study survey GP satisfaction. We want to provide a supportive service to Primary Care and maintain an efficient trauma service.
**Methods:** A referral proforma was designed and data collected on referrals made to the unit over a one month period. Admitted patients were followed up for diagnosis and management thereafter.
**Results:** 44 referrals were recorded. 65% of referrals were accepted for review in the department. The most common indications for referral were possible cauda equina, postoperative complications and infected extremities. Only 25% of referrals were admitted, with the remainder given advice or having a suitable outpatient appointment arranged.
**Conclusion:** Our results show that a direct admission service is unnecessary. We run a system which is supportive to GPs, allows good communication between primary and secondary care and is a good service to patients. Communication between the admitting doctor and the GP is invaluable. This allows specific concerns to be discussed and enables the GP to provide any relevant past medical history attaining to this presentation. In terms of time and cost management in a busy unit, this interaction between primary and secondary care practitioners is vital.

### 0626: INCIDENCE OF TOTAL HIP REPLACEMENT DISLOCATIONS AND THEIR MANAGEMENT IN A DISTRICT GENERAL HOSPITAL

William Ball, Catriona Heaver, Ralph Perkins. *Princess Royal Telford, Telford, UK.*

**Aims:** To establish dislocation rate, source and management, both intermediate and long term of total hip replacement (THR) dislocations presenting to a District General Hospital.
**Methods:** Retrospective review of 39 consecutive patient notes admitted with dislocated THR between January 2007 and June 2012. These were identified by coding on discharge documents. Data collected included patient demographics, time and site of primary surgery, number of dislocations and management.
**Results:** THR dislocation rate at our centre was 1.8%. The majority of dislocations admitted to our centre had their index procedure performed here

too (44%) although a significant proportion were performed at the regional orthopaedic specialist centre (36%). Position of instability is demonstrated by the mechanism of dislocation, flexion and extension injuries along with low impact falls made up the majority of causes (67%). In 62% of patients manipulation was performed the same day. 56% of cases were referred to the index surgeon or a revision surgeon so appropriate management could be instigated. 8 patients had a revision procedure at our centre following dislocation. There were no re-dislocations in the revisions.
**Conclusions:** Our centres dislocation rate is well within rates quoted by other papers and management of dislocations is satisfactory.

**0652: SERVICE STREAMLINING FOR ORTHOPAEDIC LODGED PATIENTS WITHIN A DISTRICT GENERAL HOSPITAL A+E**
Jonathan Kent, William Manning, Fraser Gould, Matt Dawson. *Cumberland Infirmary Carlisle, Carlisle, UK.*
**Aim:** Lodged patients are referred directly to a speciality by primary care for emergency assessment, bypassing accident and emergency triage and assessment whilst still utilising their facilities and bed space. With increasing demands on services we aimed to assess the pathways taken by orthopaedic lodged patients and their impact on A+E to help to streamline our service.
**Methods:** Between Augusts 2011-12 a retrospective review of all orthopaedic lodged patients attending a district general A+E was undertaken. Cases were identified from HR coding and cross referenced against e-records for presentation, diagnosis, assessment time, imaging and destination.
**Results:** 313 lodged patients presented to A+E over the study period. The average time for assessment was 162mins, 8% breached 4 hours waiting in A+E. 53% patients were discharged direct from A+E, 43% admitted and 4% transferred to tertiary spinal centres. Assessing each case, 25% of presentations were over 72hrs old and new trauma accounted for 20%.
**Conclusions:** Robust referral pathways for common and delayed presentations could reduce inappropriate referral to the acute orthopaedic service by up to 30%. Increasing acceptance of patients into fracture clinic reduced inappropriate use of A+E space as-well-as reducing patient journeys to hospital for repeat assessments.

**0670: FACTORS INFLUENCING THE ACCURACY OF TEMPLATING IN TOTAL HIP ARTHROPLASTY**
Andrew Riddick, Adam Smith, Phillip Thomas. *University Hospital of Wales, Cardiff, UK.*
**Aim:** To assess the accuracy of templating in a single surgeon, single implant practice, and investigate what factors influenced this accuracy.
**Methods:** Sixty-one consecutive patients who had undergone uncemented THA using a single implant (Profemur-Z) under the supervision of the senior author (DPT) over a 12 month period were identified from theatre list records. Patient demographics were collected from the National Joint Registry form. Pre- and post-operative radiographs were reviewed. The known size of the implanted acetabular cup was compared with the measured size on the radiograph. The magnification factor (MF) was calculated using the known size of the scaling ball (MF=measured size/30).
**Results:** Based on the post-operative radiographs, the mean magnification factor was 127%. The cup size was within one size of the actual implant in 87% of cases and the femoral component in 92%.
**Conclusion:** The consistent magnification factor of the post operative radiographs would allow for accurate templating without the use of a scaling ball. There are no measurable variables which correlate with the accuracy of the pre-operative templating in THA. Further study is needed to determine whether an average value MF is constant across hospitals, and if this is more accurate than using a scaling ball.

**0671: USE OF WEIGHT RELIEVING SHOES IN FOREFOOT SURGERY**
Ali Abdulkarim [1], Gehad Mohamed [2], Lester D'Suoza [2]. [1] *Cappagh National Orthopaedic Hospital, Dublin, Ireland;* [2] *Mid-Western Regional Hospital, Limerick, Ireland.*
**Aim:** to review our experience with the use of the heel bearing shoes for forefoot weight relief and evaluate its use & application in our daily forefoot surgical practice
**Method:** A retrospective review of all (341) patients who underwent reconstructive forefoot surgery in our unit.
**Results:** 258 procedures performed between January 2003 to February 2006 those patients used cast postoperatively (first group), while 83 procedures performed March 2006 to October 2007 where forefoot shoe postoperatively (second group). 51(19.77%) from the first group reported stiffness of toes at 6 weeks review whilst only 3(3.61%) out of the second group.18 (6.98%) reported discomfort and stiffness of the hip from the first group in comparison to only 2(2.25%) patients in group two. From the first group 27(10.47%) reported knee stiffness while only one patient in the second group. The incidence of clinically significant low back pain was 12(4.65%) in the first group and 5(5.61%) patients in the second group.
**Conclusion:** Heel weight bearing shoes play an important role following reconstructive forefoot surgery; however some problems may be encountered during their use. Early physiotherapy is essential to avoid these problems.

**0672: VASCULAR INJURIES ASSOCIATED WITH TRAUMATIC BONE FRACTURES**
Ali Abdulkarim [1], Fergal Fleming [3], Perice Grace [3], Thomas Burke [2]. [1] *Cappagh National Orthopaedic Hospital, Dublin, Ireland;* [2] *Department of Trauma, Mid-Western Regional Hospital, Limerick, Ireland;* [3] *Department of Vascular Surgery, Mid-Western Regional Hospital, Limerick, Ireland.*
**Aim:** To determine the mechanisms of injury and evaluate the outcome of combined orthopaedic and vascular injuries.
**Method:** A retrospective review of all patients with vascular injury associated with limb bone fractures in 14 years period.
**Results:** Of 22,340 fractures treated during the 14 years period 18 patients sustained a vascular injury that required surgical intervention and form the basis of this review. Road traffic accidents accounted for 12 injuries (66%), other accidents 4(22%), iatrogenic injury 1(6%), and 1 gunshot injury (6%). Four patients had an associated nerve injury with varying severity. Skeletal fixation preceded vascular repair in most of the cases. The primary vascular procedures included end-to-end anastamosis 2(11%), bypass grafting 1(6%), interposition vein grafts 8(43%), vein patch 1(6%), direct arterial repair 2(11%), ligation 2(11%), primary amputation 1(6%), reposition of normal course of artery 1(6%). During a 17 months follow-up period, the upper and lower limb preservation rate was 100 and 89%, respectively. Nine patients (50%) were symptom free; three patients (16.6%) had a neurological deficit.
**Conclusion:** Vascular injury is uncommon in the orthopaedic patients. High suspicion and early intervention is essential to optimise outcome and function.

**0675: THE USE OF SHOE SIZE TO PREDICT COMPONENTS SIZE IN TOTAL KNEE ARTHROPLASTY**
Ali Abdulkarim, Shane Brady, Samual Chibuike, Michael Donnelly, Sean Dudeney. *Cappagh National Orthopaedic Hospital, Dublin, Ireland.*
**Aim:** to evaluate the accuracy of a patient's shoe size as a predictor of the implant components sizes in TKA.
**Methods:** A retrospective review was conducted to identify the correlation between patient's shoe size (British system) and the femoral and tibial component size for a group of patients underwent TKA in our hospital using the Triathlon TKA system.
Shoe size was obtained by telephone questionnaire. Tibial and femoral component sizes were obtained by review of operation notes and post operative radiographs to exclude over or undersized components. Age and gender of the patients was also recorded. Spearmann's correlation test was used to assess for correlation between shoe size and component sizes.
**Results:** 300 patients were included in the study; Age range was 51-89 years at the time of surgery. We found a positive correlation between shoe size and both femoral and tibial components sizes ($p<0.001$).
**Conclusion:** Patient shoe size can be a simple and reliable option to predict the implant size in TKA, and can be used more efficiently preoperatively as an alternative for templating radiography.

**0676: CARPAL TUNNEL SYNDROME (CTS): ARE TOO MANY CASES UNNECESSARILY REFERRED TO SURGEONS?**
Humza Osmani [1], Simon Figa [2], Stephanie Hall [2]. [1] *North Middlesex University Hospital, London, UK;* [2] *Millway Medical Practice, London, UK.*